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R-585-1-7-12
SITE INSPECTION OF
POTOMAC SUPPLY CORPORATION
PREPARED UNDER

TDD NO. F3-8612-42
EPA NO. VA-306
CONTRACT NO. 68-01-7346

FOR THE
HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

SEPTEMBER 18, 1987

NUS CORPORATION
SUPERFUND DIVISION

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SECTION 1

1.0 INTRODUCTION

1.1 Authorization

NUS Corporation performed this work under Environmental Protection Agency Contract No. 68-01-7346. This specific report was prepared in accordance with Technical Directive Document No. F3-8612-42 for the Potomac Supply Corporation site located in Kinsale, Westmoreland County, Virginia.

1.2 Scope of Work

NUS FIT 3 was tasked to complete a site inspection and sampling of the Potomac Supply site.

1.3 Summary

The site is an approximately 20-acre, active sawmill and wood treatment facility. The facility has been active as a sawmill since 1947; wood treatment began in 1975. Potomac Supply Corporation has RCRA Identification Number VAD003121378 as a small quantity generator.

According to the owners and state file information, Potomac Supply Corporation uses the osmosis wood treatment process, which employs chromated copper arsenate (CCA) - Type C wood preservative. The CCA - Type C is manufactured from oxide chemicals only, such as copper oxide (CuO), chromium acid (CrO₃), and arsenic acid (H₃AsO₄). The osmosis process is the only wood treatment operation ever utilized at the site.

The facility operates its wood treatment process and has its drip pad for freshly treated wood in a fully enclosed and heated building. The treatment plant and chemical containment and recovery system are housed on the southwestern end of the plant property in a 270- by 775-foot metal building. The treatment plant operates as a closed system in order to ensure that there is no discharge of process wastewater pollutants into navigable and state waters.

Prior to the construction of the storage building, the treated wood was stored in the open. After drying, five to six percent of the CCA is available to be leached out of the wood. The CCA oxide formula used in the process is a water-borne preservative that makes these chemicals available for leaching into the ground and mobile surface waters. The two on-site, unlined setting ponds were used to collect process wastewater and storm water runoff containing CCA that had leached out of the treated lumber. The waste that is generated consists of the wood-treating process wastes (i.e., CCA), along with fluids and saps that discharge from the wood during treatments. As part of the closure process, water from these ponds is currently being pumped out, remixed, and reused. The ponds are being closed upon formal request by the Virginia State Water Control Board (VA SWCB).

The concern at this site is potential groundwater and surface water contamination. FIT 3 conducted an inspection of the site on April 24, 1986. A toxicological evaluation of analysis results of samples collected by the FIT indicates that no human health hazards are apparent at this site. An in-depth quality assurance review and toxicological evaluation of the results of these samplings can be found in sections 6 and 7 of this report, respectively.

SECTION 2

2.0 THE SITE

2.1 Location

The Potomac Supply Corporation site is located on Route 203 North in Kinsale, Westmoreland County, Virginia. The approximate center of the site is at 38° 01' 25" latitude and 76° 35' 05" longitude (refer to appendix B, figure 1).

2.2 Site Layout

Potomac Supply Corporation currently operates a lumber mill and wood preserving plant. The site property is approximately 20 acres in size.

The treating plant and chemical containment and recovery system are located on the southwestern end of the plant property in a 270- by 775-foot fully enclosed metal building. Tanks of the CCA chemicals, make-up water, and oil for the furnaces are located within the containment and recovery area. The tanks are situated on cement pads and the area is surrounded by a 12-inch cement block retaining wall. Berms have been constructed around the tank area. The total capacity of the solution tanks is 115,000 gallons. The spill containment area has the capacity to hold 126,000 gallons. In the event of a spill, all CCA can be contained.

The dry kiln area is located adjacent to the treatment building. A wastewater collection drain fully encircles the kiln. Any type of discharge from the dry kiln area is collected by the drain and then piped into a collection pit and reused as make-up water.

Two unlined settling ponds are located on the southeastern portion of the property. At the time of the site inspection, Potomac Supply Corporation was in the process of remediating the settling ponds. The sawmill is located approximately 50 yards north of the ponds.

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In accordance with EPA and VA SWCB concerns with storm water runoff, a filter strip network, located around the perimeter of the lumber yard, was installed in May 1985. The filter strips were installed in an attempt to control sediment movement during storm events, thus ensuring that the contaminated sediment is kept in place.

There are numerous dirt access roads that transect the site property. Access to the property is unrestricted.

2.3 Ownership History

Hazel T. Carden has owned and operated the facility since 1947. Prior to this time, the property was owned by the Hartwick family.

2.4 Site Use History

The subject site has been active as a sawmill since 1947; wood treatment began in 1975. Prior to 1947, the area was farmland.

The facility preserves wood using CCA water-borne preservatives. The CCA-Type C wood preservative used at the facility is manufactured by oxide chemicals such as copper oxide (CuO), chromium acid (CrO₃), and arsenic acid (H₃AsO₄). Potomac Supply Corporation uses no other chemicals in its wood preserving process.

Prior to the construction and use of the chemical containment and recovery system in 1985, treated lumber was stored in the open. This practice created a runoff problem when rain came in contact with the lumber and dissolved crystalline deposits of CCA material which had formed on its surface. Presently, the CCA work solution and treated lumber are contained within the fully enclosed chemical containment and recovery system. This system enables the facility to treat, store, and move treated lumber entirely under roof. As a result, treated lumber is not exposed to rainfall and cannot serve as a source of contamination.

Process wastewaters and surface runoff were discharged into two unlined lagoons from the start of operations, in 1975, until the newly constructed system was in place in 1985. Wastes generated at the site consist of the wood-treating process wastes (i.e., CCA), along with fluids and sap that discharge from the wood during treatment. Presently, the majority of wastewaters produced are collected and recycled. The remaining CCA material that is not recycled is transported once every three months by the Osmose Wood Preserving Corporation for either reclamation or disposal.

At the time of the site inspection, Potomac Supply Corporation was in the process of closing the settling ponds, under the direction of VA SWCB. Wastewater from these lagoons is being pumped out, collected, remixed, and reused as make-up water in the treating process. The sediment in the ponds will be neutralized with lime and disked into the soil. The area will be covered with topsoil and seeded.

2.5 Permit and Regulatory Action History

VA SWCB performs periodic inspections and sampling at the site. (Refer to appendix E and section 7.1 of this report.) VA SWCB has requested that there be no further discharge of waste into the lagoons. The owners of the site are complying with this request.

Potomac Supply Corporation has RCRA Identification Number VAD003121378 as a small quantity generator. The facility is in the process of obtaining a no-discharge certificate. According to VA SWCB, the permit will be issued for five years. The pending permit identification number is IWND4013.

2.6 Remedial Action To Date

Potomac Supply Corporation has performed extensive remedial work at the facility under the review of VA SWCB, in an effort to obtain a no-discharge certificate.

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The current treatment plant and chemical containment and recovery building was designed, and is operated, as a closed system to meet the federal and state guidelines of zero effluent discharge for process wastewater pollutants into navigable and state waters.

Under the direction of VA SWCB, the facility is closing its two unlined settling lagoons.

SECTION 3

3.0 ENVIRONMENTAL SETTING

3.1 Water Supply

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The town of Kinsale is serviced by the Sydnor Pump and Well Company. Distribution lines extend throughout the town of Kinsale and along Route 203 for approximately 3/4 mile west of the Kinsale Bridge. (b) (9)

Residents outside the limits of public water service utilize private wells for their water source.² Based on United States Geological Survey (U.S.G.S.) topographic map interpretation, there are approximately (b) (9)

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(a

(b) (9) that supplies drinking water and production water. This well is 360 feet deep, is screened from 345 to 360 feet, and has a yield of 30 gpm.⁴ (b) (9)⁵

3.2 Surface Waters

The site is drained by an unnamed tributary of the Kinsale Branch, which borders the property to the northwest. The tributary flows north and enters Kinsale Branch approximately 3/4 stream mile from the site. Kinsale Branch flows in a southeastwardly direction for approximately one stream mile before entering the West Yeocomico River. The West Yeocomico River continues to flow east for approximately two stream miles, at which point it becomes the Yeocomico River. The Yeocomico River flows in an eastwardly direction to its eventual discharge into the Potomac River. The Potomac River is located approximately 4-1/2 miles east of the site.³

Surface waters within the study area are utilized for both recreational and commercial uses, including shellfish harvesting and trapping.⁶

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3.3 Hydrogeology

3.3.1 Geology

The Potomac Supply site is in the Atlantic Coastal Plain Physiographic Province of Virginia. The geology of this province is characterized by a relatively thick wedge of unconsolidated sediments, ranging in age from Early Cretaceous to Holocene, that gently dip and thicken to the east. Underlying the sediments of the Coastal Plain are crystalline rocks of the basement complex.⁷

The site is underlain by the Pliocene age Yorktown-Eastover aquifer, which is a whitish-gray and yellow, fine to coarse sand that is commonly shelly and is interbedded with silts, clays, shell beds, and gravel. Shell beds are locally indurated. The Yorktown-Eastover aquifer may have been eroded away along the Yecomico River and its tributaries. The expected thickness in the site vicinity is about 36 to 55 feet.

Underlying the Yorktown-Eastover aquifer is the Miocene age St. Mary's confining bed. This unit is composed of light gray to blue, silty, and shelly clay interbedded with fine sands. The Miocene age Calvert confining bed underlies the St. Mary's confining bed and is a greenish-gray to dark green silty, diatomaceous clay that is sparsely shelly and sandy. Phosphatic log deposits are found at the base. The reported thickness for each confining bed is about 80 to 100 feet.⁷

The remaining Coastal Plain sediments that underlie the St. Mary's confining bed have been subdivided into 11 units. They are, in descending order, the Chickahominy-Piney Point aquifer, the Nanjemoy-Marlboro Clay confining bed, the Aquia aquifer, the Brightseat confining bed and aquifer, and the Upper, Middle, and Lower Potomac confining beds and aquifers. The total thickness of these sediments is approximately 1,800 to 2,300 feet.⁷

Underlying the sediments of the Coastal Plain with unconformity is the basement complex.⁶ The basement generally consists of highly deformed crystalline rocks of Precambrian to Lower Paleozoic age that gently slope to the east and underlie the younger sediments of the Potomac Formation with erosional unconformity. In many places, a saprolitic mantle overlies the basement surface. The altitude to the top of the basement is approximately 2,000 to 2,500 feet below sea level.⁷

No large-scale structural features have been mapped within a three-mile radius of the site.

3.3.2 Soils

The soils on site have been classified as Kempsville loam and Rumford soils. Kempsville loam occurs throughout most of the area of the site. Rumford soils occur adjacent to the intermittent stream in the northeastern portion of the site. Soils of the Kempsville Series are deep (50 to 70 inches) and well drained. These soils formed in loamy fluvial sediments and on uplands. The surface layer is a dark brown loam about eight inches thick, with a subsoil of strong brown, friable loam. Loam consists of 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles. Soils of the Rumford Series are also deep (30 to 50 inches) and well drained. Rumford soils formed in sandy and loamy marine sediments. These soils have dark brown loamy sand surface layer and a yellowish-brown loamy sand surface layer and subsoil.⁸

3.4 Groundwater

The sediments of the Coastal Plain of Virginia are considered to form a multi-layered aquifer system. Groundwater occurs and moves through intergranular openings within the unconsolidated sediments of Coastal Plain strata. The permeability of individual units primarily depends on the texture and sorting of the sediments composing the unit. Hence, the coarser and better sorted sediments of the Yorktown, Eastover, Chickahominy, Piney Point, Aquia, Brightseat, and Potomac are more permeable and favor the recharge, storage, movement, and recovery of groundwater. The other units underlying the site and discussed in section 3.3 have relatively low permeability and act as leaky confining layers.⁷

The flow of groundwater in the aquifer units underlying the site, with the exception of the Yorktown-Eastover aquifer which mantles the site, is under artesian conditions. The artesian conditions in these aquifers is a result of the presence of intervening confining units and possibly also the interbedded nature of these aquifers which may limit the flow of groundwater vertically and horizontally. The combined thickness of the Calvert and St. Mary's confining beds effectively separates the artesian aquifers from contaminant migration in the study area. The flow of groundwater in the deeper semi-artesian aquifer is probably towards the Yocomico River. The flow of groundwater within the Yorktown-Eastover aquifer is more likely under water-table conditions and is primarily influenced by local drainage patterns and topography. The Yorktown-Eastover aquifer is recharged directly by precipitation. The lower aquifers are recharged where they subcrop beneath the Yorktown-Eastover aquifer and through leakage of overlying and underlying strata.

The Yorktown-Eastover aquifer is generally capable of supplying 10 to 50 gallons per minute (gpm) for domestic needs. Most industrial and municipal supplies are obtained from deeper artesian aquifers. The on-site well is producing from the Chickahominy-Piney Point aquifer.

3.5 Climate and Meteorology

The climate of the study area is temperate, with an annual temperature of 58°F. The average annual precipitation is 40 inches. The net precipitation is eight inches.⁴

3.6 Land Use

The area surrounding the site is primarily rural. Much of the land is used for agricultural purposes. The most populated area is the town of Kinsale, which is located approximately 1/2 mile northeast of the site.

3.7 Population Distribution

Based on United States Geological Survey (U.S.G.S.) topographic map interpretation, there are approximately 390 people residing in the 1-mile radius, 850 people residing in the 2-mile radius and 1,190 people in the entire 3-mile radius.³

3.8 Critical Environments

According to the United States Fish and Wildlife Service, there are no known critical environments or endangered species within a three-mile radius of the site.⁹

3.9 References

1. Braun, Herbert, Sydnor Pump and Well Company, with Stephen McMahon, NUS FIT 3. Telecon. January 17, 1985.
2. Fowler, Keith, Virginia State Water Control Board, with Monica Connolly, NUS FIT 3. Telecon. January 15, 1987.
3. United States Geographical Survey. Kinsale, Virginia Quadrangle, 7.5 Minute Series. Map of Flood Prone Areas, 1975. Combined with Machodoc, Virginia Quadrangle, 7.5 Minute Series. Map of Flood Prone Areas, 1975; Haynesville, Virginia Quadrangle, 7.5 Minute Series. Map of Flood Prone Areas, 1980; and Lottsburg, Virginia Quadrangle, 7.5 Minute Series. Map of Flood Prone Areas, 1968.
4. Well log information. TDD No. F3-8512-28. (Located in NUS FIT 3 files.)
5. NUS Corporation, FIT 3. Site Inspection; site visit. April 24, 1986.
6. Virginia State Water Control Board, to Scott Alexander. Correspondence. April 25, 1983.
7. United States Geological Survey. Hydrogeologic Framework of the Virginia Coastal Plain. Open-File Report 84-72B, 1984.
8. United States Department of Agriculture, Soil Conservation Service. Soil Survey of Westmoreland County, Virginia. 1981.
9. United States Department of the Interior, Fish and Wildlife Service, to Garth Glenn, NUS FIT 3. Correspondence. March 3, 1987.

SECTION 4

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4.0 WASTE TYPES AND QUANTITIES

Between 1975 and 1985, the facility discharged wastewater containing CCA solution from their wood preserving process into two unlined settling ponds. The settling ponds are .17 and 1.25 acres in size. The exact quantity of wastewater generated during this period is not known.

SECTION 5

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5.0 FIELD TRIP REPORT

5.1 Summary

On April 24, 1986, FIT 3 members Monica Connolly, Brian FitzPatrick, Michael Snyder, and William Hose conducted a site inspection of the Potomac Supply Corporation. Site access was granted by Mr. Richard Gouldin, company vice president, via a telephone conversation on April 8, 1986. The FIT was accompanied by Herbert Carden and Richard Gouldin, representing Potomac Supply Corporation, and Bruce Gerber, representing Commonwealth Laboratories. Potomac Supply Corporation obtained a split sample for the on-site sample collected. Weather conditions at the time of the site visit were clear and sunny, with temperatures in the mid-60s.

The number of samples obtained was eight aqueous and five sediment, including blanks and duplicates.

5.2 Persons Contacted

5.2.1 Prior to Field Trip

Darius Ostrauskas
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841 Chestnut Building
Ninth and Chestnut Streets
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(215) 597-6488

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Virginia State Water Control Board
P.O. Box 669
Kilmarnoch, VA 22482
(804) 435-3181

Richard Gouldin
Potomac Supply Corporation
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Kinsale, VA 22488
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5.2.2 At the Site

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Bruce Gerber
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Richmond, VA 23223
(804) 648-8358

5.4 Site Observations

- o The HNU background reading was .8 ppm; no readings above background were recorded.
- o The mini-alert was set at X1; no readings above background were recorded.
- o There are two unlined settling ponds on site, .17 and 1.25 acres in size.
- o One pond has been pumped dry. The second pond is in the process of being remediated.
- o There were no observed releases from the settling ponds.
- o There is only one on-site well in operation; it is being used for both drinking and production. This well is 360 feet deep, screened from 345 to 360 feet, and has a yield of 30 gpm.
- o Downgradient home wells are serviced by a public supply system. This system receives its water supply from a well located approximately (b) (9) of the site.
- o There were no stained soils areas or sheens observed along the tributary.